



ATTORNEY DOCKET NO. 13172.0001U1  
SERIAL NO. 09/514,113

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**In the specification:**

The paragraph beginning at line 9 of page 7 has been amended as follows:

Examples of such nucleotides include abasic nucleosides [(Biegelman) (Beigelman et al., Bioorganic & Medicinal Chemistry Letters 4(14):1715-1720 (1994); Moran et al., Nucleic Acids Res. 24(11):2044-2052 (1996); Matray and Kool, Nature 399:704-708 (1999)), 5'-fluoro substituted nucleosides (Robins and Wnuk, Tetrahedron Lett. 29:5729 (1988)), 5'-alkyl substituted nucleosides (Ray and Jaxa-Chamiec, Heterocycles 31(10):1777-1780 (1990); Jun-Dong and Li-He, Synthesis 909-911 (1990); Tanaka et al., Tetrahedron Lett. 30:2567-2570 (1989)), nucleosides with 5'-alkyl or phenyl substituted ethers (Jones et al., Carbohydrates, Nucleosides, Nucleotides 4:301 (1977)), 5'-substituted thioethers (Connolly and Rider, Nucleic Acids Res. 13:4485 (1985); Connolly, Nucleic Acids Res. 15:3131-3139 (1987); Sinha and Cook, Nucleic Acids Res. 16:2659 (1988); Kumar et al., Nucleic Acids Res. 19:4561 (1991); Zuckermann et al., Nucleic Acids Res. 15:5305 (1987); Gupta et al., Tetrahedron Lett. 31:2471-2474 (1990); [Asslie] Asseline et al., Tetrahedron 48:1233-1254 (1992)), 5'-amines and substituted amines (Connolly and Rider, Nucleic Acids Res. 13:4485 (1985); [Sproat] Haralambidis et al., Nucleic Acids Res. 15:4857 (1987); [Zuckerman] Zuckermann et al., Nucleic Acids Res. 15:5305 (1987), Li et al., Nucleic Acids Res. 15:5275 (1987); Dreyer and Dervan, Proc. Natl. Acad. Sci. USA 82:968 (1985)), phosphate esters as 5'-terminators (Tanaka et al., Tetrahedron Lett. 30:2567-2570 (1989)), inverted bases or  $\alpha$ -nucleosides as 5'-terminators (Bloch et al., Gene 72:349 (1988); Sequin, Helv. Chim. Acta. 57:68 (1974)), 2',3'-dideoxy nucleosides as 5'-terminators (Huryn and Okabe, Chem. Rev. 92:1745-1768 (1992)).

The paragraph beginning at line 1 of page 8 has been amended as follows:

The nucleotides or oligonucleotides can also be derivatized with, for example, biotin, dyes such as fluorescein or rhodamine, or proteins such as alkaline phosphatase or horseradish peroxidase. 5'-

modifications useful in the disclosed oligonucleotides include 5'-spacers [(Durard) Durand et al., *Nucleic Acids Res.* 18:6353 (1990); Salunkhe et al., *J. Amer. Chem. Soc.* 114:8768-8772 (1992); Dolinnaya et al., *Nucleic Acids Res.* 21:5403-5407 (1993); Takeshita et al., *J. Biol. Chem.* 262:10171-10179 (1987); [Kalin] Kalnik et al., *Biochemistry* 27:924-931 (1998)), 5'-biotinylated primers (Cocuzza, *Tetrahedron Lett.* 30:6287-6290 (1989); Nelson et al., *Nucleic Acids Res.* 20:6253-6259 (1992)), 5'-cholesteryl (Mackellar et al., *Nucleic Acids Res.* 20:3411-3417 (1992); Stein et al., *Biochemistry* 30:2439-2444 (1991)), 5'-DNP-TEG (Will et al., *Carbohydrate Research* 216:315-322 (1991); Grzybowski et al., *Nucleic Acids Res.* 21:1705-1712 (1993)), 5'-psoralen cross-linkers (Pieles and Englisch, *Nucleic Acids Res.* 17:285 (1989); [Taksugi] Takasugi et al., [*Proc. Natl. Acad. Sci. USA* 88:5602-5606 (1991)), 5'-intercalating agents (Thoung and Chassignol, *Tetrahedron Lett.* 29:5905 (1988)), 5'-PNA conjugates (Nielsen et al., *Science* 254:1497-1500 (1991); Egholm et al., *J. Am. Chem. Soc.* 114:1895-1897 (1992)), 5'-enzyme conjugates (Jablonski et al., *Nucleic Acids Res.* 14:6115-6128 (1986)), 5'-dye-label (Molecular Probes, Eugene, Oreg.; Research Organics, Cleveland, Ohio).

The paragraph beginning at line 6 of page 21 has been amended as follows:

Ten reactions were carried out under the conditions used for ERCA in order to illustrate the reduction of primer-based artifacts by using primers containing two template-deficient nucleotides at the 5' ends. Reactions (30  $\mu$ l) contained 20 mM Tris-HCl, 10 mM KCl, 10 mM  $(\text{NH}_4)_2\text{SO}_4$ , 2 mM  $\text{MgSO}_4$ , 0.1% Triton X-100 (pH 8.8 at 25°C) (TRITON is a registered trademark of Union Carbide Chemicals and Plastics Co., Inc., Danbury, Conn.). In addition, reactions contained 400  $\mu$ M deoxyribonucleoside triphosphates,  $\alpha$ -[ $^{32}\text{P}$ ] dCTP, specific activity 169 cpm/pmol total dNTP, and 8 units Bst DNA polymerase. ERCA primers were added as indicated, where 'aba' indicates the presence of an abasic nucleotide residue.